

# PENNEAST PIPELINE PROJECT

## *Draft Environmental Impact Statement*

### Volume I

PennEast Pipeline Company, LLC

Docket No. CP15-558-000

**FERC\EIS: 0271D**



### Federal Energy Regulatory Commission

Office of Energy Projects

Washington, DC 20426



### Cooperating Agencies



**US Army Corps  
of Engineers**



**July 2016**



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**PENNEAST PIPELINE PROJECT**  
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Docket No.  
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FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:

OEP/DG2E/Gas 2

PennEast Pipeline Company, LLC

Docket No. CP15-558-000

FERC/EIS-0271D

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared a draft environmental impact statement (EIS) for the PennEast Pipeline Project (Project), proposed by PennEast Pipeline Company, LLC (PennEast) in the above-referenced docket. PennEast requests authorization to construct and operate the Project for the purpose of providing about 1.1 million dekatherms per day (MMDth/d) of year-round natural gas transportation service from northern Pennsylvania to markets in eastern and southeastern Pennsylvania, New Jersey, and surrounding states.

The draft EIS assesses the potential environmental effects of the construction and operation of the Project in accordance with the requirements of the National Environmental Policy Act. The FERC staff concludes that approval of the Project would result in some adverse environmental impacts; however, most of these impacts would be reduced to less-than-significant levels with the implementation of PennEast's proposed mitigation and the additional recommendations in the draft EIS.

The U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture Natural Resources Conservation Service participated as cooperating agencies in the preparation of the EIS. Cooperating agencies have jurisdiction by law or special expertise with respect to resources potentially affected by the proposal and participate in the National Environmental Policy Act analysis. Although these agencies provided input to the conclusions and recommendations presented in the draft EIS, the agencies will present their own conclusions and recommendations in any respective record of decision or determination for the Project.

The draft EIS addresses the potential environmental effects of the construction and operation of about 118.8 miles of natural gas pipeline and

associated equipment and facilities in Pennsylvania and New Jersey. The 118.8 miles would consist of the following facilities:

- 115.1 miles of new 36-inch-diameter pipeline extending from Luzerne County, Pennsylvania to Mercer County, New Jersey;
- the 2.1-mile Hellertown Lateral consisting of 24-inch-diameter pipe in Northampton County, Pennsylvania;
- the 0.1-mile Gilbert Lateral consisting of 12-inch-diameter pipe in Hunterdon County, New Jersey; and
- the 1.5-mile Lambertville Lateral consisting of 36-inch-diameter pipe in Hunterdon County, New Jersey.

In addition to the pipeline facilities, PennEast would construct a new 47,700 horsepower compressor station in Kidder Township, Carbon County, Pennsylvania. The Project would also include the construction of eight metering and regulating stations for the Project interconnects, eleven mainline valves, and four pig launcher/receivers.

The FERC staff mailed copies of the draft EIS to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. Paper copy versions of this draft EIS were mailed to those specifically requesting them; all others received a CD version. In addition, the draft EIS is available for public viewing on the FERC's website ([www.ferc.gov](http://www.ferc.gov)) using the eLibrary link. A limited number of copies are available for distribution and public inspection at:

Federal Energy Regulatory Commission  
Public Reference Room  
888 First Street NE, Room 2A  
Washington, DC 20426  
(202) 502-8371

Any person wishing to comment on the draft EIS may do so. To ensure consideration of your comments on the proposal in the final EIS, it is important that the Commission receive your comments on or before **September 5, 2016**.

For your convenience, there are four methods you can use to submit your comments to the Commission. In all instances, please reference the Project's docket number (CP15-558-000) with your submission. The Commission

encourages electronic filing of comments and has expert staff available to assist you at (202) 502-8258 or [efiling@ferc.gov](mailto:efiling@ferc.gov).

- 1) You can file your comments electronically using the eComment feature on the Commission's website ([www.ferc.gov](http://www.ferc.gov)) under the link to Documents and Filings. This is an easy method for submitting brief, text-only comments on a project.
- 2) You can file your comments electronically by using the eFiling feature on the Commission's website ([www.ferc.gov](http://www.ferc.gov)) under the link to Documents and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on “eRegister.” If you are filing a comment on a particular project, please select “Comment on a Filing” as the filing type.
- 3) You can file a paper copy of your comments by mailing them to the following address:

Nathaniel J. Davis, Sr., Deputy Secretary  
Federal Energy Regulatory Commission  
888 First Street NE, Room 1A  
Washington, DC 20426

- 4) In lieu of sending written or electronic comments, the Commission invites you to attend one of the public comment meetings its staff will conduct in the Project area to receive comments on the draft EIS. We<sup>1</sup> encourage interested groups and individuals to attend and present oral comments on the draft EIS at any of the meeting locations.

**The dates and locations of the public comment meetings will be provided in a future notice.** There will not be a formal presentation by Commission staff, but FERC staff will be available throughout the meetings to answer your questions about the environmental review process. The meetings will be scheduled from 6:00pm to 10:00pm. The primary goal will be to have your verbal environmental comments on the draft EIS documented in the public record.

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<sup>1</sup> “We,” “us,” and “our” refer to the environmental staff of the FERC's Office of Energy Projects.

Verbal comments will be recorded by court reporter(s) and transcriptions will be placed into the docket for the Project and made available for public viewing on FERC's eLibrary system (see below for instructions on using eLibrary). If a significant number of people are interested in providing verbal comments, a time limit of 3 to 5 minutes may be implemented for each commenter. It is important to note that verbal comments hold the same weight as written or electronically submitted comments.

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (Title 18 Code of Federal Regulations Part 385.214).<sup>2</sup> Only intervenors have the right to seek rehearing of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding that no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

### **Questions?**

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website ([www.ferc.gov](http://www.ferc.gov)) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP15-558). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at [FercOnlineSupport@ferc.gov](mailto:FercOnlineSupport@ferc.gov) or toll free at (866) 208-3676; for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription that allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to [www.ferc.gov/docs-filing/esubscription.asp](http://www.ferc.gov/docs-filing/esubscription.asp).

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<sup>2</sup> See the previous discussion on the methods for filing comments.

## **EXECUTIVE SUMMARY**

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### **INTRODUCTION**

On September 24, 2015, PennEast Pipeline Company, LLC (PennEast) filed an application with the Federal Energy Regulatory Commission (Commission or FERC) under section 7(c) of the Natural Gas Act and Parts 157 and 284 of the Commission's regulations. The application was assigned Docket No. CP15-558-000 and a Notice of Application was issued on October 8, 2015 and noticed in the Federal Register on October 15, 2015. PennEast is seeking a Certificate of Public Convenience and Necessity (Certificate) from the FERC to construct, operate, and maintain a new natural gas pipeline system, including pipeline facilities, a compressor station, metering and regulating stations, and appurtenant facilities in Pennsylvania and New Jersey, referred to as the PennEast Pipeline Project, or Project.

The purpose of this environmental impact statement (EIS) is to inform FERC decision-makers, the public, and the permitting agencies about the potential adverse and beneficial environmental impacts of the Project and its alternatives, and recommend mitigation measures that would reduce adverse impacts, to the extent practicable. We<sup>3</sup> prepared this EIS to assess the environmental impacts associated with construction and operation of the Project as required under the National Environmental Policy Act of 1969 (NEPA), as amended. Our analysis was based on information provided by PennEast and further developed from data requests; field investigations; scoping; literature research; contacts with or comments from federal, state, and local agencies; and comments from individual members of the public.

The FERC is the lead agency for the preparation of the EIS. The U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), and U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) participated in the NEPA review as a cooperating agencies.<sup>4</sup>

### **PROPOSED ACTION**

The Project includes about 118.8 miles of pipeline composed of the following facilities:

- 115.1 miles of new, 36-inch-diameter pipeline extending from Luzerne County, Pennsylvania to Mercer County, New Jersey;
- the 2.1-mile Hellertown Lateral consisting of 24-inch-diameter pipe in Northampton County, Pennsylvania;
- the 0.1-mile Gilbert Lateral consisting of 12-inch-diameter pipe in Hunterdon County, New Jersey; and
- the 1.5-mile Lambertville Lateral consisting of 36-inch-diameter pipe in Hunterdon County, New Jersey.

In addition to the pipeline facilities, PennEast would construct a new 47,700 horsepower compressor station in Kidder Township, Carbon County, Pennsylvania. The Project would also

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<sup>3</sup> "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects.

<sup>4</sup> A cooperating agency is an agency that has jurisdiction over all or part of a project area and must make a decision on a project, and/or an agency that provides special expertise with regard to environmental or other resources.

include the construction of eight metering and regulating stations for the Project interconnects, 11 mainline valve (MLV) sites, and four pig launcher/receiver sites.

Subject to the receipt of FERC authorization and all other applicable permits, authorizations, and approvals, PennEast anticipates starting construction as soon as possible to meet its projected in-service date of November 2017.

The Project would provide about 1.1 million dekatherms per day of year-round natural gas transportation service from northern Pennsylvania to markets in New Jersey, eastern and southeastern Pennsylvania, and surrounding states.

## **PUBLIC INVOLVEMENT**

On October 10, 2014, the FERC staff began its pre-filing review of the Project and established pre-filing Docket No. PF15-1-000 to place information related to the Project into the public record. The U.S. Army Corps of Engineers agreed at that time to conduct its environmental review of the Project in conjunction with the Commission's environmental review process.

On January 13, 2015, FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned PennEast Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings*. On January 21, 2014, we issued a *Notice of Extension of Comment Period and Clarification of Location of Public Comment Meetings for the PennEast Pipeline Project*. Public scoping meetings were held from February 10-12 and 25-26, 2015 in Bethlehem, Northampton County, Pennsylvania; Jim Thorpe, Carbon County, Pennsylvania; Wilkes-Barre, Luzerne County, Pennsylvania; Trenton, Mercer County, New Jersey; and Hampton, Hunterdon County, New Jersey. FERC sent an additional scoping letter on August 19, 2015 to landowners affected by the significant route modifications and opened an additional 30-day comment period.

Substantive environmental issues identified through this public review process are addressed in this EIS. The transcripts of the public scoping meetings and all written comments are part of the FERC's public record for the Project and are available for viewing using the appropriate docket number.

## **ENVIRONMENTAL IMPACTS AND MITIGATION**

We evaluated the potential impacts of construction and operation of the Project on geology; soils; water resources; wetlands; aquatic resources; vegetation and wildlife; threatened, endangered, and special status species; land use, recreation, and visual resources; socioeconomics; cultural resources; air quality and noise; reliability and safety; and cumulative impacts. In Section 3 of this EIS, we summarized the evaluation of alternatives to the Project, including the no-action alternative, system alternatives, major route alternatives, minor route variations, and an alternative compressor station location. Where necessary, we are recommending additional mitigation measures to minimize or avoid these impacts. Sections 5.1 and 5.2 of the EIS contain our conclusions and a compilation of our recommended mitigation measures, respectively.

Construction of the Project would affect about 1,613.5 acres of land, including the pipeline facilities, aboveground facilities, pipe and contractor ware yards and staging areas, and access roads. Permanent operations would require about 784 acres of land, of which 715 acres would be for the pipeline right-of-way, 61 acres would be affected by aboveground facilities, and 8 acres



would be affected by new permanent access roads. The remaining 829.5 acres of land disturbed during construction would be restored and allowed to revert to its former use.

### Geology

Mineral resources in the Project area include crushed stone, cement, tripoli, lime, and sand and gravel production. There are 27 abandoned or reclaimed mines along the route, all located within Luzerne County. We are recommending that PennEast provide the results of its ongoing evaluation of potential presence of working and abandoned mines near the proposed crossing of the Susquehanna River. There are two active quarries within 0.25 mile of the Project area and two active industrial mineral quarries about 4 miles from the Project, all located in Luzerne County. PennEast has contacted the quarry owners and aligned the pipeline to avoid future expansion plans of these quarries. There are no mines or quarries located within 0.25 mile of the Project in New Jersey. There are no mapped locations of oil and gas wells within 0.25 mile of the Project.

Seismic hazards with potential to affect the pipeline include earthquakes, surface faults, and soil liquefaction. The pipeline would be designed in accordance with all applicable federal and state safety codes, which would govern pipeline thickness, welding standards for joints, and pipeline strength. We conclude that this would allow the pipeline to withstand nearly all ground shaking that could be anticipated to occur from an earthquake.

The Project would be located in an area considered to have a low incidence of landslides for the New Jersey portion of the Project. In Pennsylvania, however, portions of the Project are susceptible to landslides. Site-specific evaluations of landslide risks are ongoing. In Phase 1 of its Terrain Mapping and Geohazard Risk Evaluation Report PennEast identified the areas where it would conduct further field investigation and analysis during Phase 2 and 3 of the Geohazard Risk Evaluation to be used in the final design. We are recommending that PennEast include in its pipeline design geotechnical report an evaluation of liquefaction hazards along the pipeline route and at the compressor station site, a final landslide hazard inventory, as well as necessary mitigation measures and a post-construction monitoring plan. We are also recommending that PennEast include in its pipeline design geotechnical report the results of ongoing evaluations necessary to support final pipeline routing/mitigation measures through geologically hazardous areas, a final landslide inventory, specific landslide mitigation measures with locations, and a post-construction landslide monitoring plan.

PennEast would implement mitigation measures to control waterbody flow increases during pipeline installation activities in accordance with PennEast's Erosion and Sediment Control Plan (E&SCP). No permanent aboveground facilities are located within 100-year floodplains as reported by the Federal Emergency Management Agency. Aboveground facilities located near floodplains and pipeline stream crossings would be designed to prevent potential impacts from high-velocity flows, largely by controlling erosion, in accordance with PennEast's E&SCP.

The portions of the Project with potential karst impacts include sections of the Project in Carbon, Northampton, and Bucks Counties in Pennsylvania and Hunterdon County in New Jersey, totaling about 13.8 miles. PennEast continues to complete additional geophysical investigations as landowner permissions become available, and would incorporate this work into a final Karst Mitigation Plan. We are recommending that PennEast file a final Karst Mitigation Plan.

Naturally occurring arsenic is present in trace amounts in the rocks for the Newark Basin of southeastern Pennsylvania and New Jersey. PennEast conducted a leachability evaluation of rock samples collected along the proposed pipeline route. Based on the results of this study, we conclude that no mitigation measures related to arsenic mobilization are necessary during Project construction and operation. PennEast has prepared a well testing plan and proposes to conduct groundwater quality testing of potentially affected wells prior to construction that would provide a baseline to determine whether any arsenic increases in groundwater occur after the pipeline is installed and operational. In the unlikely event that construction results in any impacts on a water-supply well, PennEast would provide a treatment system to remove arsenic from the drinking water at individual properties or find an alternative water source.

PennEast is conducting geotechnical investigations at 11 proposed horizontal direction drill (HDD) crossings. The purpose of the geotechnical investigations is to understand if the existing condition would be suitable to use the HDD method and to help design each HDD crossing. Some field analysis is incomplete due to lack of permission to access the right-of-way to install borings, changes in the proposed alignment and design, and variation in geologic materials encountered requiring modifications in the drilling program. PennEast has also developed a HDD Drilling Plan for Karst Terrain, to be included as part of the Karst Mitigation Plan, as several of the crossings would be performed in carbonate rock. We are recommending that PennEast file the results of all outstanding geotechnical investigations in karst areas and the final planned design of each HDD crossing prior to construction.

We conclude that the Project would not have significant impacts on geologic resources. In addition, with the implementation of PennEast's proposed mitigation measures as well as its Blasting Plan, Karst Mitigation Plan, and E&SCP, and our recommendations, the geologic risk to Project facilities would be minimized.

### Soils

Areas with shallow depth to bedrock crossed by the pipeline pose a risk of introducing rock into the topsoil in agricultural and residential areas. Minimization efforts would include topsoil segregation and protection along the trench, rock backfill in residential and agricultural areas only to the top of the existing bedrock profile, and disposal of excess rock fragments in an approved manner so as to not incorporate rock fragments into topsoil layers.

PennEast would minimize soil compaction and rutting, erosion, impacts on prime farmland and drainage tiles and increase revegetation potential by following its E&SCP and FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures). If contaminated soils or groundwater are encountered during construction, PennEast would follow protocol in its Unexpected Contamination Encounter Procedures.

Implementation of PennEast's E&SCP, FERC's Plan and Procedures and other project-specific plans would adequately avoid, minimize, or mitigate construction impacts on soil resources. Permanent impacts on soils would mainly occur at the aboveground facilities where the sites would be converted to industrial use. Based on our analysis, we conclude that potential impacts on soils would be avoided or effectively minimized or mitigated.

## Water Resources and Wetlands

Groundwater in the Project area includes four principal bedrock aquifer systems as well as a number of surficial unconsolidated aquifers in Pennsylvania and New Jersey. In addition, the Project would cross two EPA-designated sole source aquifers. The Project would cross three wellhead protection areas, the Riegelsville Borough Zone III in Pennsylvania and two well head protection areas in Milford Borough and Alexandria Township, New Jersey.

There are no public and/or private water supply wells or springs that would be located within 150 feet of the pipeline construction workspace in Pennsylvania. Two public supply wells were identified within 150 feet of the pipeline construction workspace in Hunterdon County, New Jersey. Because surveys along the Project route are not yet complete, we are recommending that, prior to construction, PennEast provide a revised list of water wells and springs within 150 feet of any construction workspace (500 feet in areas characterized by Karst terrain) based on completed surveys. PennEast has prepared a Well Monitoring Plan to outline procedures for pre- and post-construction monitoring of all identified drinking water supply wells, including private, community, municipal/public wells, and springs, within 150 feet of the proposed construction workspace (500 feet in areas characterized by Karst terrain).

PennEast identified areas of potential groundwater contamination and prepared an Unanticipated Discovery of Contamination Plan that includes measures it would follow if any unanticipated contaminated soils are encountered during construction. We have reviewed the Unanticipated Discovery of Contamination Plan and find it acceptable; however, we are recommending that PennEast identify the management and field environmental professionals responsible for notification for contaminated sites. Accidental spills during construction and operations would be prevented or adequately minimized through implementation of PennEast's Spill Prevention, Control, and Countermeasures Plan.

In areas where blasting or rock hammering may be needed to excavate the trench to proper depth, fracturing of the bedrock may result in shallow groundwater infiltration in these areas. Blast charges would be limited to that needed to fracture rock to the required trench depth, and fracturing of bedrock would therefore be limited to within several feet of the pipeline trench. All blasting would be performed in a manner consistent with the guidance in PennEast's Project-specific Blasting Plan that includes measures to minimize groundwater impacts.

The Project would cross 255 waterbodies (159 perennial, 45 intermittent, 40 ephemeral, and 11 open water), 11 of which are classified as major waterbodies that are over 100 feet in width. PennEast proposes to cross waterbodies using a combination of HDD, bores, and dry-crossing methods to minimize in-stream turbidity impacts. Beltzville Lake, the Lehigh River/Lehigh Canal the Delaware River/Delaware Canal, Locketong Creek (at two locations), and an unnamed tributary to Woolsey Brook would be crossed using the HDD method. We have reviewed PennEast's HDD Inadvertent Returns and Contingency Plan and HDD profiles; however, we are recommending that PennEast file results of all outstanding geotechnical investigations and file final planned designs for each HDD crossing.

PennEast is proposing to use both surface water and municipal water sources for hydrostatic testing that would ensure the safe integrity of pipeline operations. In total, PennEast anticipates withdrawing about 18 million gallons of water for hydrostatic testing. Because

PennEast has not identified the final hydrostatic test water withdrawal locations, we are recommending that, prior to construction, PennEast provide documentation of the final hydrostatic test water withdrawal sources and locations, and provide documentation that all necessary permits and approval have been obtained for withdrawal from each source.

Construction of the Project would temporarily impact about 56 acres of wetlands (26 acres in Pennsylvania and 30 acres in New Jersey) and permanently impact about 35 acres of wetlands (17 acres in Pennsylvania and 18 acres in New Jersey). In emergent wetlands, the impact of the construction and permanent rights-of-way would be relatively brief because the emergent vegetation would regenerate quickly, typically within one to three years. In scrub-shrub and forested wetlands, PennEast would maintain a 10-foot-wide corridor centered over the pipeline in an herbaceous state and would selectively cut trees within a 30-foot-wide corridor centered over the pipeline. The remainder of forested and scrub-shrub vegetation would be allowed to return to preconstruction conditions and would not be affected during operation. No permanent fill or loss of wetland area would result from construction and operation of the Project.

Construction and operation-related impacts on wetlands would be mitigated by PennEast's compliance with the conditions of permits issued under sections 401 and 404 of the Clean Water Act, by implementing the wetland protection and restoration measures contained in its E&SCP, and through measures determined during consultation with federal and state agencies. Because at least one wetland with extremely saturated soils has been identified along the Project route, we are recommending that PennEast identify special construction methods for construction in extremely saturated wetlands as well as justification of any resulting required additional workspace.

Vernal pools are considered to be communities of special concern in both Pennsylvania and New Jersey and the Project would impact several vernal pool areas within the proposed pipeline right-of-way. Based on current information, approximately 0.13 acre of vernal pool habitats would be impacted by construction of the Project, with 0.11 acre permanently impacted during operation. Because surveys along the Project route are not yet complete, we are recommending that, prior to construction, PennEast provide a revised table of impacts on vernal pools within or near the proposed workspace based on completed surveys.

Based on our analysis, we conclude that the Project is not expected to significantly impact groundwater, surface water, or wetland quality or quantity during construction or operation with implementation of PennEast's proposed mitigation measures as well as our recommendations.

### Aquatic Resources

The Project would cross multiple waterbodies, thereby potentially affecting aquatic biological resources (e.g., invertebrates and fish) during the initial crossing of these waterbodies during construction, as well as during the operation of the Project. Different crossing methods, including conventional dry ditch, conventional bore, and HDD, would be used during these crossings depending upon the sensitivity and environmental characteristics of the resource that would be affected at each individual crossing.

Construction of the pipeline could have both direct and indirect impacts on aquatic biological resources. In-stream pipeline construction could remove habitat, temporarily increase sedimentation and turbidity in the water column, increase the potential for streambank erosion, temporarily disturb streambed foraging areas, and temporarily increase the potential for fuel or

chemical spills. To minimize the extent and duration of these potential impacts, PennEast would implement the requirements and Best Management Practices found in its E&SCP and FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

The Project has the potential to restrict the flow of water as well as the movement of aquatic organisms within the waterbody during both construction and operation of the Project if the crossing is not constructed correctly. The conventional bore and HDD crossing method would involve installing the pipeline segment beneath the waterbody which would prevent disturbance of bottom sediments and avoid altering the flow of water within the waterbody. The conventional dry-ditch method would use flumes or dam-and-pumps to move water around the open trench. To ensure that the flow of water and movement of fish is not impacted on a long-term basis at the proposed crossings, PennEast would ensure that the depth of the pipe through waterbodies would prevent the pipe from becoming perched within the waterbody, and install culverts and/or bridges used at the proposed permanent access road crossings in compliance with all state and federal requirements.

PennEast would comply with all waterbody crossing windows established by state and federal permits in order to avoid or minimize impacts on aquatic biological resources. In accordance with the FERC Procedures, to minimize impact on fisheries resources, all in-stream work would be performed between June 1 and September 30 to protect cold water fisheries and between June 1 and November 30 to protect warm water fisheries, unless other more stringent agency timing restrictions would apply to the affected waterbody.

With the implementation of these measures, as well as the requirements found in FERC's Plan and Procedures, we conclude that overall impacts on aquatic resources would be adequately minimized.

### Vegetation and Wildlife

Direct impacts on wildlife during construction could include the displacement of wildlife from the Project area, as well as direct mortality of some individuals. Some species are likely to be displaced from habitats that are cleared of vegetation as well as from areas adjacent to construction sites due to construction noise and visual disturbances.

Impacts on forest habitat could include fragmentation and edge effects. The proposed pipeline route was sited to avoid areas containing large, interior forested stands where possible. When forests could not be avoided, proposed routing through a forest was accomplished by locating the pipeline as far from the interior portion of the forest as practicable to maximize preservation of interior forest habitat. About 44.3 miles (26.8 miles in Pennsylvania and 17.5 miles in New Jersey), or about 37 percent, of the 115.1-mile-long pipeline route would be constructed adjacent to existing rights-of-way (see section 2.2.1) to further minimize habitat impacts.

Following construction, all temporarily disturbed areas would be restored in accordance with our Plan and Procedures. Impacts on forested habitats would be considered long-term because of the time required to restore woody vegetation to preconstruction conditions. During operation, routine vegetation maintenance of the right-of-way would be required to allow access for pipeline patrols, and to maintain access in the event of emergency repairs. In upland areas, maintenance of the right-of-way would involve periodic vegetation maintenance within the entire

permanent right-of-way, and a 10-foot-wide strip centered on the pipeline would be mowed annually.

The Project would cross areas identified as unique or exemplary wildlife habitats, including the Bear Creek Preserve, Sourland Mountain Region, State Game Lands, Deer Management Areas, and Important Bird Areas (including Hickory Run State Park, Kittatinny Ridge, Musconetcong Gorge, Everittstown Grassland, Baldpate Mountain, and Pole Farm).

PennEast would work with the appropriate regulatory agencies as part of the permitting process to minimize the potential that invasive or noxious plant species spread during construction of the Project. We are recommending that PennEast file an Invasive Plant Species Management Plan that would be implemented during construction and operation.

PennEast would implement restrictions on the locations and timing of construction activities, as required by state and federal agencies, in order to avoid or minimize impacts on wildlife species and their habitats. Furthermore, PennEast is required to develop a Migratory Bird Conservation Plan and implement measures recommended by the FWS to protect bald eagles in order to comply with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. In addition, PennEast would work with the local soil conservation district as well as land management agencies to determine the appropriate seed mixes that should be used during revegetation efforts.

With the implementation of these measures, as well as the requirements found in FERC's Plan and Procedures, we conclude that overall impacts on vegetation and wildlife would be adequately minimized.

#### Threatened, Endangered, and Special Status Species

The species included in the Threatened, Endangered, and Special Status Species section of this EIS include those species that are federally listed under the Endangered Species Act (ESA), those that are listed under applicable state endangered species laws (e.g., the Pennsylvania Endangered Species Coordination Act and the New Jersey Endangered Species Conservation Act), and those that are considered Species of Special Concern in New Jersey.

Through informal consultation with the FWS and National Marine Fisheries Service (NMFS), five federally listed threatened or endangered species have been identified as potentially occurring in the Project area. These species include two mammals (Indiana bat and northern long-eared bat), one reptile (bog turtle), one invertebrate (dwarf wedgemussel), and one plant species (northeastern bulrush). The Pennsylvania Fish and Boat Commission (PFBC) further identified two fish species that are listed under both the ESA and the two applicable state endangered species laws (the Atlantic sturgeon and shortnose sturgeon) as potentially occurring downstream of the Project area; although the NMFS stated that these listed fish species do not occur in the Project area and would not be impacted by the Project. Due to this comment by the PFBC, analysis of these two listed fish species was included in this EIS.

PennEast has attempted to avoid habitats and known occurrences of ESA listed species, and has committed to avoidance and minimization measures related to these species, including 1) timing restrictions on tree clearing in areas identified by the FWS as important to listed bat species; 2) implementation of a 300-foot no disturbance buffer around wetlands and 150-foot no

disturbance buffer around waterways that support listed species; 3) use of a HDD crossing method for waterbodies suspected of supporting listed species; and 4) the implementation of surveys for listed species in all suitable habitats crossed by the Project. Furthermore, consultation with the FWS is ongoing regarding ESA listed species, and as part of this ongoing consultation process the FWS may develop additional measures beyond those described in this EIS to avoid or minimize impacts on ESA listed species. The implementation of these measures would likely avoid or minimize some of the potential impacts that could occur on ESA listed species. All areas of potential suitable habitats have not been surveyed to date (indicating that additional occurrences of these species is possible along the Project).

Therefore, our preliminary determination for the Indiana bat, northern long-eared bat, bog turtle, dwarf wedgemussel, and northeastern bulrush is that the Project “*may affect and is likely to adversely affect*” these species. Our preliminary determination for the Atlantic sturgeon and shortnose sturgeon is “*no effect*”, as these species occur approximately 20 river-miles downstream of the Project and the implementation of the Project’s design features (e.g., the proposed HDD crossing of the Delaware River/Delaware Canal, as well as the requirements found in PennEast’s E&SCP and FERC’s Plan and Procedures) would prevent any Project related effects from occurring in waters 20 miles downstream. We have further recommended that PennEast complete all surveys of potential suitable habitats for special status species in the Project area, and not construct any portion of the Project until formal consultation with the FWS is complete.

FERC requests that the FWS consider this EIS as the Biological Assessment.

The Project has the potential to impact multiple state listed species, as well as New Jersey Species of Special Concern. PennEast has stated that it would adhere to the recommendations and requirements of the respective state agencies with jurisdiction over state listed species and state species of concern in order to avoid or minimize impacts on these species. PennEast has also indicated that ongoing permit review by Pennsylvania and New Jersey may result in the identification of additional avoidance, minimization, or mitigation measures that would be included as part of the Project’s permit conditions. In general, we conclude that relying on state-level experts for the development of measures that would minimize impacts on state listed species and state species of concern would appropriately avoid or reduce impact on these species. As a result, we have recommended that PennEast continue to work with the state agencies on measures to avoid or minimize impacts on these state species.

#### Land Use, Recreation, and Visual Resources

Construction of the Project would impact about 1,613.5 acres. About 66 percent of this acreage would be utilized for the pipeline facilities, including the construction right-of-way and additional temporary work space (ATWS). The remaining acreage affected during construction would be associated with aboveground facilities (4 percent), pipe and contractor ware yards (23 percent), and access roads (7 percent). During operation, the new permanent pipeline right-of-way, aboveground facilities, and permanent access roads would encumber 784 acres.

The maintained right-of-way would be mowed no more than once every three years, but a 10-foot-wide strip centered over the pipeline might be mowed annually to facilitate corrosion and other operational surveys. The construction of permanent structures or the planting of trees, would be prohibited within the permanent right-of-way. To facilitate pipeline inspection, operation, and

maintenance, the entire permanent right-of-way in upland areas would be maintained in an herbaceous/scrub-shrub vegetated state.

Based on field surveys conducted by PennEast where access was available, and review of aerial photography in other locations, PennEast's proposed construction work areas would be located within 50 feet of 462 structures (i.e., houses and apartment buildings, commercial or industrial facilities, sheds, garages), with 298 structures within 25 feet of PennEast's proposed construction work area. A total of 66 of these structures within 25 feet of PennEast's proposed construction work area are residential structures. PennEast has provided site-specific construction plans for some residences within 25 feet of the construction work areas. We are recommending that PennEast provide any remaining site-specific construction plans for all residences within 25 feet of the construction right-of-way and ATWS including landowner approval.

Thirteen planned residential and commercial development projects have been identified within 0.25 mile of the proposed Project facilities, including seven residential developments, three commercial developments, two municipal developments, and one hospital expansion. We are recommending that PennEast continue to consult with landowners for several of these planned developments, and file any mitigation measures that PennEast would implement to minimize impacts on the developments prior to the end of the draft EIS comment period.

PennEast would require about 104 acres of agricultural land in Pennsylvania and 100 acres in New Jersey as new permanent right-of-way, but operation of the proposed pipeline would not affect the continuing use of these areas for agricultural activities after construction is complete. Following construction, all affected agricultural land would be restored to preconstruction conditions to the extent possible, in accordance with PennEast's E&SCP and Agricultural Impact Minimization Plan, and with any specific requirements identified by landowners or state or federal agencies with appropriate jurisdiction.

In general, the effects of the Project on recreational and special interest areas occurring outside of forestland would be temporary and limited to the period of active construction, which typically lasts several weeks or months in any one area. These effects would be minimized by implementing the measures in PennEast's E&SCP, Best Management Practices, and other project-specific construction plans. In addition, PennEast would continue to consult with the owners and managing agencies of recreation and special interest areas regarding the need for specific construction mitigation measures. PennEast considered several alternative crossing locations of the Appalachian National Scenic Trail, and has developed a site-specific crossing plan at this location, after considering comments and perspectives shared by the National Park Service, Appalachian Trail Conservancy, Pennsylvania Game Commission, and other stakeholders. We have reviewed this crossing plan and find it acceptable. However, PennEast is responsible for obtaining the pertinent permits from the appropriate authorities for crossing the Appalachian National Scenic Trail at this location. To further minimize effects on other recreation and special interest areas crossed by the Project, we are recommending that PennEast file an update on the status of development of the site-specific crossing plans for each of the recreation and special interest areas listed as being crossed or otherwise affected, including site-specific timing restrictions, proposed closure details and notifications, specific safety measures, and other mitigation to be implemented.



The Project would cross a number of areas enrolled in a variety of conservation programs. Although there would be temporary impacts and potential disruption during construction, following pipeline installation all activities and accesses currently available to the public would be returned to their original state. We are recommending that PennEast file the results of consultations with the NRCS and the landowner of the one known USDA easement crossed, any proposed mitigation measures to be implemented, and copies of correspondence prior to the end of the draft EIS comment period. The limited permanent easement area that PennEast would acquire for pipeline installation and operation would lose its conservation status, but only in that PennEast would acquire the development rights to install and maintain the pipeline in this easement. The majority of the land area that is subject to conservation easement restrictions would retain its conservation restriction status outside of PennEast's permanent right-of-way.

The Project would not cross any known landfills or hazardous waste sites, although portions of the Project, between mileposts 47 and 52 would occur within a 1-mile buffer from the Palmerton Zinc Pile Superfund site. The pipeline would not impact existing and/or on-going Superfund site remedies, and levels of contamination, if existing outside of the Superfund site boundary, would be within an acceptable risk threshold and remedial action would not be required.

Visual resources along the proposed pipeline route are a function of geology, climate, and historical processes, and include topographic relief, vegetation, water, wildlife, land use, and human uses and development. A portion of the new pipeline (about 37 percent) would be installed within or parallel to existing rights-of-way. As a result, the visual resources along these portions of the Project have been previously affected by other similar activities. Impacts in other areas would be greatest where the pipeline route would parallel or cross roads and the pipeline right-of-way may be seen by passing motorists; from residences where vegetation used for visual screening or for ornamental value is removed; and where the pipeline is routed through forested areas.

After construction, all disturbed areas, including forested areas, would be restored in compliance with PennEast's E&SCP; federal, state, and local permits; landowner agreements; and easement requirements. Generally this would include seeding the restored areas with grasses and other herbaceous vegetation, after which trees would be allowed to regenerate within the temporary workspaces. The visual effects of construction on forested areas would be permanent on the maintained right-of-way where the regrowth of trees would not be allowed, and would be long term, lasting several years or longer, in the temporary workspaces. The greatest potential visual effect would result from the removal of large specimen trees, but the visual effects of removing smaller trees would even last for several years. PennEast proposes to reseed with native plants to revegetate the construction right-of-way which would result in the establishment of native wildflowers for pollinators along the maintained right-of-way.

The compressor station would be located in previously logged, disturbed forest in Carbon County, Pennsylvania. Visual disturbance would be limited to vegetation clearance for the access road off Pennsylvania Route 940 and partial views of the site from Interstate 80. We conclude that the retention of trees and shrubs around the perimeter of the compressor station site would provide sufficient cover to avoid any significant adverse visual impacts.

With implementation of PennEast's proposed impact avoidance, minimization, and mitigation plans, and our recommendations, we conclude that overall impacts on land use and visual resources would be adequately minimized.

## Socioeconomics

Construction of the Project would result in minor beneficial socioeconomic impacts due to increases in construction jobs, payroll taxes, purchases made by the workforce, and expenses associated with the acquisition of material goods and equipment. Operation of the Project would have a minor to moderate positive effect on the local governments' tax revenues due to the increase in property taxes that would be collected from PennEast.

## Cultural Resources

A sizeable portion of the Project has not been investigated for cultural resources. Where PennEast had been granted right of entry, it conducted cultural resources identification surveys on approximately 3,110 acres in Pennsylvania and 587 acres in New Jersey. The surveys identified 14 archaeological sites in Pennsylvania and six sites in New Jersey. Additionally there were 110 aboveground historic resources identified in Pennsylvania and 41 in New Jersey. PennEast has recommended avoiding a number of these resources and conduct resource evaluations, where necessary. Although the Pennsylvania and New Jersey State Historic Preservation Offices (SHPOs) concurred with some of the recommendations, they did not agree with all of the recommendations by PennEast. Consultation is ongoing with the Pennsylvania and New Jersey SHPOs. We are recommending that PennEast provide documentation of Pennsylvania and New Jersey SHPOs' concurrence with PennEast's proposed avoidance, resource identification/recommendations, updated documentation, avoidance plans, and evaluation reports/treatment plans, when necessary. If National Register of Historic Places-eligible archaeological sites cannot be protected from Project impacts, PennEast would develop a treatment plan or mitigation of adverse effects.

The National Park Service expressed concerns regarding potential Project effects to trails and cultural resources. PennEast has ongoing consultation with the National Park Service regarding these potential effects. Additionally, we are recommending that PennEast develop a vibration monitoring plan and modify its blasting plan to include a review of potential effects to cultural resources.

To ensure that our responsibilities under section 106 of the National Historic Preservation Act are met, we are recommending that PennEast not begin construction until any additional required surveys are completed, survey reports and treatment plans (if necessary) have been reviewed by the consulting parties, and we provide written notification to proceed. The studies and impact avoidance, minimization, and measures proposed by PennEast, and our recommendation, would ensure that any adverse effects on cultural resources would be appropriately mitigated.

## Air Quality and Noise

Construction of the Project components would result in short-term increases in emissions of some air pollutants due to the use of equipment powered by diesel fuel or gasoline engines and the generation of fugitive dust due to the disturbance of soil and other dust-generating activities. Such air quality impacts would generally be temporary and localized, and are not expected to cause or contribute to a violation of applicable air quality standards. Local emissions may be elevated, and nearby residents may notice elevated levels of fugitive dust, but these would not be significant. Pipeline construction is anticipated to occur in four separate spreads, each of which is estimated

to result in 6.5 months of emission-generating activities, while construction activities at the Kidder Compressor Station would take 6 months. Preparation of access roads and pipeyards would generate emissions for an estimated 3 months, including laying of gravel, and then removal of gravel at the end of construction. Construction staging areas would produce emissions for an estimated 10 months.

During operation of the pipeline and the Kidder Compressor Station, emissions of criteria pollutants, greenhouse gases (GHGs), and hazardous air pollutants would occur. Estimated emissions from the proposed Kidder Compressor Station are below all Prevention of Significant Deterioration (PSD) thresholds except for GHG. However, the requirements of PSD are not triggered if GHG is the only pollutant above the PSD threshold. Along the pipeline route, leaks and venting could occur at the compressor station and potentially from small leaks at flanges and valves. Emissions expected during operation of the pipeline would be relatively minor. No Federal Class I Areas would be impacted.

PennEast would be required to meet all federal and state air quality permitting requirements prior to construction and operation of the Project. PennEast would comply with federal and state air quality permitting rules, including the installation of mitigation measures and technologies required to meet federal and state air quality regulations. Therefore, we conclude that the Project would not result in significant air quality impacts.

Because the construction of the compressor station would exceed FERC's threshold at several noise-sensitive areas (NSAs), PennEast has agreed to implement mitigation measures, as necessary, such as use of temporary noise barriers. For NSAs that are closer to pipeline-related construction activity, such as the Econolodge, Pizza Residence, and Golf Course, mitigation may be needed depending on the construction activity. Depending on the listener proximity to the Project right-of-way, pipeline construction noise may also be audible to recreationists at Hickory Run State Park and the eastern end of Beltzville State Park. During construction, PennEast would employ a combination of noise mitigation methods, including equipment noise controls, temporary noise barriers, and administrative measures including temporary relocation of residents, to minimize noise related to construction activity at NSAs near the Project. These would include appropriate mitigation measures to achieve compliance during HDD installation operations and equipping haul trucks and other engine-powered equipment with adequate mufflers. PennEast would restrict timing of noisy construction or demolition work to 7 a.m. to 10 p.m. We are recommending that PennEast file a noise mitigation plan prior to construction and implement this plan during HDD or direct pipe construction activities.

The Project would likely require blasting in some areas of the proposed route to dislodge bedrock resulting in potential noise and vibration impacts. PennEast's Blasting Plan includes mitigation measures related to blasting activity. Blasting would be conducted in accordance with applicable agency regulations, including advance public notification and mitigation measures as necessary.

The primary source of operational noise for the Project would be the Kidder Compressor Station. PennEast would be required to meet the most restrictive noise level limits established by jurisdictional agencies. The FERC limit of 55 decibel-A weighted (dBA) day-night sound level, which is equivalent to a continuous noise level of 49 dBA, would be the governing limit for those areas where a more restrictive county, local, or station-specific regulation does not exist. PennEast

would implement mitigation measures to ensure that the applicable standards are met at the nearest NSA, including installing the turbines in acoustically insulated and treated buildings and, if possible, locating the inlet silencer inside the compressor building. We are recommending that PennEast conduct noise surveys after completing the compressor station construction to confirm that noise standards are met.

If blow-off valves are to be used during planned maintenance, PennEast would affix a silencer to the blow-off valve to minimize noise impacts. Maintenance blowdown events would typically occur only during daytime hours and PennEast plans to notify all landowners in the immediate area. Due to the infrequency and short duration of the blowdown events, noise impacts are expected to be minimal; however, we are recommending that PennEast identify mitigation measures to minimize noise levels associated with emergency or maintenance MLV blowdown events.

Based on the analyses conducted, the proposed mitigation measures, and our recommendations, we concluded that construction and operation of the Project would not result in significant noise impacts on residents and the surrounding environment.

### Reliability and Safety

The pipeline and aboveground facilities associated with the Project would be designed, constructed, operated, and maintained to meet the U.S. Department of Transportation (DOT)'s Minimum Federal Safety Standards in Title 49 Code of Federal Regulations part 192 and other applicable federal and state regulations. These regulations include specifications for material selection and qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion. The DOT rules require regular inspection and maintenance, including repairs as necessary, to ensure the pipeline has adequate strength to transport the natural gas safely. Further, although regulations requiring remote control shut-off valves have not yet gone into effect and would apply to pipelines built in the future, PennEast committed to the use of remote control shut-off valves for the proposed pipelines.

We conclude that PennEast's implementation of the above measures would ensure compliance with the DOT's regulations regarding public safety and the integrity of the proposed facilities.

### Cumulative Impacts

A majority of the impacts associated with the Project in combination with other projects such as residential developments, utility lines, and transportation projects, would be temporary and relatively minor overall. However, some long-term cumulative impacts would occur on wetland and forested vegetation and associated wildlife habitats. Some long-term cumulative benefits to the community would be realized from the increased tax revenues. Short-term cumulative benefits would also be realized through jobs, wages, and purchases of goods and materials. Emissions associated with the Project would contribute to cumulative air quality impacts. There is also the potential, however, that the Project would contribute to a cumulative improvement in regional air quality if a portion of the natural gas associated with the Project displaces the use of other more polluting fossil fuels. With implementation of specialized construction techniques, the relatively short construction timeframe in any one location, and carefully developed resource protection and mitigation plans designed to minimize and control environmental impacts for the Project as a

whole, we conclude that the cumulative impacts associated with the Project, when combined with other known or reasonably foreseeable projects, would be effectively limited.

## **ALTERNATIVES CONSIDERED**

As an alternative to the proposed action, we evaluated the no-action alternative, energy alternatives, and system alternatives. We also evaluated pipeline routing alternatives and an alternative compressor station location.

While the no-action alternative would eliminate the short- and long-term environmental impacts identified in the EIS, the stated objectives of PennEast's proposal would not be met. We evaluated the use of alternative energy sources and the potential effects of energy conservation, but these measures similarly would not satisfy the objectives of the Project, provide an equivalent supply of energy, or meet the demands of the Project shippers.

Our analysis of system alternatives included an evaluation of whether existing or proposed natural gas pipeline systems could meet PennEast's objectives while offering an environmental advantage. There is no available capacity for existing pipeline systems to transport the required volumes of natural gas to the range of delivery points proposed by PennEast. Moreover, with the exception of the Transco Leidy Line, none of these existing pipeline systems are in close proximity to the production areas of northern Pennsylvania. We determined that an expansion of the existing Transco Leidy Line as an alternative would not be feasible due to densely populated areas along the line that would prevent looping. Expansion of the Transco Leidy Line would also not provide access to the delivery points proposed by PennEast. Other existing systems in the area of the Project would require significant expansions to meet the objectives of the Project, which would result in environmental impacts similar to or greater than the Project.

We evaluated whether an expansion of the proposed Atlantic Sunrise Project could serve as a system alternative. Approximately 100 percent of capacity for the Atlantic Sunrise Project, and 90 percent for the PennEast Project, has been contracted, therefore, there is customer demand for both projects. The Atlantic Sunrise Project would also not provide for the same delivery points for customers that have been identified for the PennEast Project. Consequently, there are no practicable existing or proposed system alternatives that are environmentally preferable to the Project.

We evaluated four major route alternatives to the proposed pipeline route. Because none of these would offer major environmental advantages over the proposed pipeline route, we do not consider the route alternatives to be preferable to the proposed route. During the Project review process we evaluated 83 route variations that were identified by PennEast or suggested by landowners, municipalities, and other stakeholders. The variations were identified to avoid or reduce effects on environmental or other resources at specific locations, resolve engineering or constructability issues, address specific landowner requests, or address other stakeholder concerns. We evaluated route variations as summarized in section 3 of this EIS. Of the 83 variations, PennEast has incorporated 39 into the proposed route. We have reviewed the route variations incorporated into the proposed route and agree with PennEast's conclusions regarding incorporation of the 39 route variations into the proposed route.

We evaluated one alternative site for the proposed Kidder Compressor Station and do not consider the alternative site to be preferable to the proposed site. We also evaluated the feasibility

of installing electric motor driven compressor units at the Kidder Compressor Station instead of the proposed natural gas-fired compressor turbines. We found that this alternative would result in higher overall emissions due to emissions created by generation of the needed electricity, and this alternative would result in additional impacts from construction of the needed electric transmission service to the site. We do not consider electric motor driven compressor units to be preferable to the proposed natural gas-fired compressor turbines.

## CONCLUSIONS

We determined that construction and operation of the Project would result in some adverse environmental impacts, but impacts would be reduced to less-than-significant levels with the implementation of PennEast's proposed and our recommended mitigation measures. This determination is based on a review of the information provided by PennEast and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies as well as Indian tribes and individual members of the public.

Although many factors were considered in this determination, the principal reasons are:

- About 44.3 miles (26.8 miles in Pennsylvania and 17.5 miles in New Jersey), or about 37 percent, of the 115.1-mile-long pipeline route would be constructed adjacent to existing rights-of-way.
- PennEast would minimize impacts on natural and cultural resources during construction and operation of the Project by implementing its E&SCP, FERC's Plan and Procedures, and other Project-specific plans (Unanticipated Discovery Plan, Agricultural Impact Minimization Plan, Karst Mitigation Plan, HDD Drilling Plan for Karst Terrain, HDD Inadvertent Returns and Contingency Plan, Unexpected Contamination Encounter Procedures, Spill Prevention Control and Countermeasures Plan, Blasting Plan, Invasive Plant Species Control Plan, Well Monitoring Plan, and Compensatory Wetland Mitigation Plan).
- The FERC staff would complete the process of complying with section 7 of the ESA prior to construction.
- The FERC staff would complete consultation under section 106 of the National Historic Preservation Act and implementing regulations at 36 CFR 800.
- PennEast would comply with all applicable air and noise regulatory requirements during construction and operation of the Project.
- An environmental inspection program and a third-party monitoring oversight program would be implemented to ensure compliance with the mitigation measures that become conditions of the FERC authorization.

In addition, we developed Project-specific mitigation measures that PennEast should implement to further reduce the environmental impacts that would otherwise result from construction and operation of the Project. We determined that these measures are necessary to reduce adverse impacts associated with the Project and, in part, are basing our conclusions on implementation of these measures. Therefore, we are recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. These recommended mitigation measures are presented in section 5.2 of the EIS.

**PENNEAST PIPELINE PROJECT  
DRAFT ENVIRONMENTAL IMPACT STATEMENT**

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<b>TABLE 4.12.4-1</b>	
<b>Project Facility and Pipeline Construction Activity Combined GHG Emissions</b>	
<b>Source Category</b>	<b>Emissions (Total Tons)</b>
	<b>CO<sub>2</sub>e</b>
Pipeline Diesel Non-Road Equipment Totals	31,476
Diesel and Gas On-Road	1,690
Construction Activity Fugitive Dust	-
Roadway Fugitive Dust	-
Comp. Station Construction Sub-Total	1,712
<b>Total</b>	<b>34,878</b>

<b>TABLE 4.12.4-2</b>	
<b>Operational Phase GHG Emissions</b>	
<b>Source Category</b>	<b>Emissions (Tons Per Year)</b>
	<b>CO<sub>2</sub>e</b>
Compressor Station	191,785
PA Pipeline Total	11,450
NJ Pipeline Total	70,823
<b>Total</b>	<b>274,057</b>

We have received comments from EPA recommending that we also estimate GHG emissions from the development and production of natural gas being transported through the proposed pipeline, as well as estimate the GHG emissions associated with the end use of the gas. FERC has in the past ruled that while upstream development and production of natural gas might be a “reasonably foreseeable” effect of a proposed action, the actual scope and extent of potential GHG emissions from upstream natural gas production is not reasonably foreseeable (FERC 2015). CEQ’s draft guidance on evaluating GHG impacts does not require NEPA analyses to include such unforeseeable effects.

However, GHG impacts from end use of the gas transported by the Project are reasonably foreseeable. The proposed transmission capacity of the Project is 1.1 million dekatherms per day (MMDth/d). A dekatherm is equal to 10 therms, or 1,000,000 Btus, of heat content. Using the GHG emission factors and global warming potentials published in 40 CFR 98 for emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O from combustion of natural gas, potential end-use GHG emissions would be 23,500,000 tons per year during the expected lifetime of the Project.

In May 2014, the USGCRP issued a report, *Climate Change Impacts in the United States: The Third National Climate Assessment*, summarizing the impacts that climate change has already had on the United States and what projected impacts climate change may have in the future (USGCRP 2014). The report includes a breakdown of overall impacts by resource and impacts described for various regions of the United States. Although climate change is a global concern, for this cumulative analysis we focus on the potential cumulative impacts of climate change in the PennEast Pipeline Project area.